

CLAIMS

What is claimed is:

1. A transporting apparatus, comprising:
a supporting part;
first and second driving axles rotatably supported by the supporting part;
a plurality of driving links respectively combined to the first and second driving axles;
a plurality of transporting links rotatably connected to the driving links; and
a transporting table rotatably connected to the transporting links by pivots to reciprocate
by a cooperation of the driving links and the transporting links, the first and second driving axles
being aligned in a reciprocating direction of the transporting table.
2. The transporting apparatus according to claim 1, wherein the first driving axle is
passed through a center of the supporting part, and the second driving axle is eccentrically
passed through the supporting part behind the first driving axle in the reciprocating direction of
the transporting table.
3. The transporting apparatus according to claim 1, wherein the pivots connecting
the transporting links with the transporting table are aligned in the reciprocating direction of the
transporting table.
4. The transporting apparatus according to claim 1, further comprising:
an engaging device to interlock the first driving axle with the second driving axle, so that
the first and second driving axles are rotated reversely to each other.
5. The transporting apparatus according to claim 2, further comprising:
an engaging device to interlock the first driving axle with the second driving axle, so that
the first and second driving axles are rotated reversely to each other.
6. The transporting apparatus according to claim 1, wherein the driving links are
provided with groove parts to avoid an interference with the first and second driving axles.

7. The transporting apparatus according to claim 1, wherein outside ends of the driving links combined to the first and second driving axles at inside ends thereof, are connected with two pairs of transporting links, and the two pairs of transporting links are connected to two transporting tables, respectively.

8. The transporting apparatus according to claim 1, wherein the driving links have a three-tiered structure, so that two transporting tables are different in height and alternately reciprocated.

9. The transporting apparatus according to claim 8, wherein the driving links comprise:

first and third driving links symmetrically combined to the first driving axle; and
second and fourth driving links combined to the second driving axle, being placed up and down relative to the first and third driving links, respectively, to avoid an interference with each other.

10. The transporting apparatus according to claim 1, wherein the links are connected to the first and second driving axles, and the first and second driving axles are different in height to prevent the links connected thereto from interfering with each other.

11. The transporting apparatus according to claim 1, wherein the pivots allow the first and second driving axles to rotate in opposite directions.

12. The transporting apparatus according to claim 1, wherein the links are symmetrically rotated according to a rotation of the first and second driving axles.

13. The transporting apparatus according to claim 1, further comprising:
a driving part to drive the first and second driving axles, the driving part including,
a first motor to drive the first and second driving axles to rotate;
a second motor to drive a supporting shaft of the supporting part which is interlocked with the first and second driving axles to rotate; and
a third motor to drive the supporting shaft and the second motor to move up and down.

14. The transporting apparatus according to claim 13, wherein one of the first and second driving axles is indirectly driven by the first motor.

15. The transporting apparatus according to claim 13, wherein the supporting shaft and one of the first and second driving axles are provided concentrically.

16. The transporting apparatus according to claim 13, wherein the driving part comprises:

a feedthrough and a bellows to make the driving part vacuum.

17. A transporting apparatus, comprising:

a supporting part;

first and second driving axles rotatably supported by the supporting part;

a plurality of driving links respectively combined to the first and second driving axles;

a plurality of transporting links rotatably connected to the driving links; and

first and second transporting tables rotatably connected to the transporting links by pivots to reciprocate by a cooperation of the driving links and the transporting links, the first and second driving axles being aligned in a reciprocating direction of the first and second transporting tables.

18. The transporting apparatus according to claim 17, wherein the transporting links comprise:

first and second transporting links rotatably connected to the first and second driving links; and

third and fourth transporting links rotatably connected to the second transporting table, the third and fourth transporting links and the second transporting table being placed opposite of the first and second transporting and the first transporting table.

19. The transporting apparatus according to claim 18, wherein outside ends of the driving links combined to the first and second driving axles at inside ends thereof, are connected with the first, second, third and fourth transporting links, and the first and second and the third and fourth transporting links are connected to the first and second transporting tables, respectively, enhancing transport efficiency.

20. The transporting apparatus according to claim 18, wherein the pivots are provided to connect the first, second, third, and fourth transporting links with the first and second transporting tables, and are aligned in the reciprocating direction of the first and second transporting tables.

21. The transporting apparatus according to claim 17, wherein the driving links comprise:

first and third driving links provided as a single body and symmetrically combined to the first driving axle; and

second and fourth driving links combined to the second driving axle, being placed up and down relative to the first and third driving links, respectively, to avoid an interference with each other.

22. The transporting apparatus according to claim 21, wherein the first, second, third, and fourth driving links have a three-tiered structure, so that the first and second transporting tables are different in height to avoid an interference with each other and alternately reciprocate.

23. The transporting apparatus according to claim 21, wherein the first, second, third, and fourth driving links are rotatably connected with the first, fourth, second and third transporting links, respectively.

24. The transporting apparatus according to claim 21, wherein the first, third, and fourth driving links are provided with groove parts to avoid an interference with the first and second driving axles when the first, third, and fourth driving links are aligned in a reciprocating direction.

25. A transporting apparatus, comprising:

a supporting part;

first and second driving axles rotatably supported by the supporting part;

a plurality of driving links respectively combined to the first and second driving axles;

a plurality of transporting links rotatably connected to the driving links; and

a transporting table rotatably connected to the transporting links by pivots to reciprocate by a cooperation of the driving links and the transporting links, the first and second driving axles being aligned in a reciprocating direction of the transporting table, so that a moment load acting on the transporting table is decreased, preventing the transporting table from drooping and enhancing transport efficiency.